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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,845	03/09/2004	Donald James Lewis	FGT 338CON2	5678

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EXAMINER

NGUYEN, TU MINH

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/797,845

Applicant(s)

LEWIS ET AL.

Examiner

Tu M. Nguyen

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29-32 is/are allowed.
- 6) ☒ Claim(s) 15-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. An Applicant's Amendment filed on October 4, 2004 has been entered. Claims 15, 23, and 29 have been amended; and claims 30-32 have been added. Overall, claims 15-32 are pending in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 15-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Oguma et al. (U.S. Patent 6,494,037).

Re claim 15, as shown in Figures 1, 3, 5, and 12, Oguma et al. disclose an emission control system an internal combustion engine, comprising:

- an emission control device (3) disposed in an exhaust passage of the internal combustion engine; and
- a controller (6) determining oxidant storage in the emission control device, the determined oxidant storage based on a state (cooling state) of the emission control device at a

previous shut down condition where the engine is off (see Figures 3-4 and at least lines 11-22 of column 5 where an initial high speed component (HO2INT) of the catalyst is determined based on a catalyst temperature (TCATINT) during engine startup); and during starting, adjusting fuel injection amount into the internal combustion engine based on the determined oxidant storage to take into account a change oxidant storage during the shut down state (see Figure 12).

Re claim 16, in the system of Oguma et al., the determined oxidant storage based on a shut down time (an initial low speed component of oxygen storage amount (LO2INIT) is set equal to LO2MAX even if the engine is restarted immediately after an engine stop (lines 1-6 of column 11)).

Re claim 17, in the system of Oguma et al., the determined oxidant storage is based on temperature of the emission control device (lines 11-22 of column 5).

Re claim 23, as shown in Figures 1, 3, 5, and 12, Oguma et al. disclose an emission control system of an internal combustion engine, comprising:

- an emission control device (3) disposed in an exhaust passage of the internal combustion engine; and
- a controller (6) determining an oxidant storage amount in the emission control device, the determined oxidant storage amount based on a shut down state time and temperature of the emission control device, where the shut down state is a vehicle shut down (when the engine is started, an initial high speed component of oxygen storage amount (HO2INT) is determined based on a catalyst temperature (see Figure 3 at least lines 11-22 of column 5); and an initial low speed component of oxygen storage amount (LO2INIT) is set equal to LO2MAX even if the

engine is restarted immediately after an engine stop (lines 1-12 of column 11)); and adjusting a fuel injection amount into the internal combustion engine based on the determined oxidant storage during starting (see Figure 12).

Re claims 18 and 24, in the system of Oguma et al., the determined oxidant storage amount is based on a time constant (lines 1-6 of column 11).

Re claims 19 and 25, in the system of Oguma et al., shut down state includes a vehicle shut down state.

Re claims 20 and 26, in the system of Oguma et al., the starting includes vehicle starting.

Re claims 21-22 and 27-28, in the system of Oguma et al., the determined oxidant storage is based on an oxidant state before the vehicle was turned off (the low speed component of oxygen storage amount (LO2) is set at its maximum level (LO2MAX) before the vehicle is turned off and is kept at this level at the startup of the engine).

Allowable Subject Matter

4. Claims 29-32 are allowed.

Response to Arguments

5. Applicant's arguments with respect to the reference of Oguma et al. to reject claims 15-28 applied in the previous Office Action have been fully considered but they are not persuasive.

Re claim 15, in response to applicant's argument that Oguma et al. fail to disclose determining an oxidant storage amount in the catalyst based on a state of the catalyst during an engine shut off (page 11 of Applicant's Amendment), the examiner respectfully disagrees.

As shown in Figures 3-4 and indicated on lines 11-22 of column 5, an initial high speed component (HO2INT) of the catalyst in Oguma et al. is determined based on an initial catalyst temperature (TCATINT) during engine startup. This temperature is due to a cooling state of the catalyst during a previous shut down condition where the engine is off. Hence, Oguma et al. clearly disclose determining an oxidant storage amount in the catalyst based on a state of the catalyst during an engine shut off.

Re claim 23, in response to applicant's argument that Oguma et al. fail to disclose determining an oxidant storage amount in the catalyst based on a shut down time of the engine (page 8 of Applicant's Amendment), the examiner again respectfully disagrees.

The paragraph on lines 1-12 of column 11 in Oguma et al. reads "*After the engine 1 stops, when the engine restarts immediately, diffusion of air from the outlet of the exhaust passage does not proceed and the low speed component does not reach the maximum capacity, but even in this case, the low speed component is reset to the maximum capacity LO2MAX. In other words, the computation value of the low speed component LO2 immediately after startup contains an error. However, even in this case, the computation value is reset to the minimum capacity (FIG. 11) when the exhaust flowing out from the catalyst 3 has become rich, so computational errors in the low speed component are all eliminated.*" This paragraph indicates that Oguma et al. set the low speed component of an oxidant storage amount to the maximum

capacity LO2MAX for any the shut down time of the engine (i.e., the low speed component LO2 is equal to LO2MAX for engine shut down time equals zero to infinite). Thus, in a broad reasonable interpretation of the claim language, Oguma et al. indeed determine an oxidant storage amount based on a shut down time of the engine. Claims in a pending application are given their broadest reasonable interpretation. See *In re Pearson*, 181 USPQ 641 (CCPA 1974).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 3748

Communication

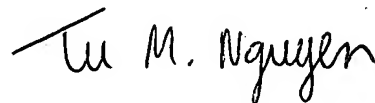
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TMN

December 26, 2004



Tu M. Nguyen

Primary Examiner

Art Unit 3748